C. Claims

Please cancel claims 1-15 without prejudice or disclaimer and add new claims 16-48 as follows. A complete listing of all the claims appears below; this listing replaces all earlier amendments and listings of the claims.

1. - 15. (Cancelled)

16. (New) A substrate for an ink jet head comprising:

a base plate formed with a heat-generating resistor for generating energy for discharging ink;

an electrode wiring electrically connected with said heat-generating resistor; and

a protective layer provided above said heat-generating resistor and said electrode wiring, said protective layer being constituted of a two-layered section formed by a lower layer of a TaCr alloy and an upper layer of Ta, and of a single-layered section having said lower layer,

wherein a resin construction made by resin is formed on said lower layer of said single-layered section and said upper layer of said two-layered section is provided at a position in contact with ink at least above said heat-generating resistor.

17. (New) The substrate according to claim 16, wherein said lower layer of said single-layered section fixes a flow path forming member as resin construction through an organic adhesion promoting layer.

18. (New) The substrate according to claim 16, wherein said lower layer of said protective layer contains Cr in an amount equal to or higher than 12 atomic %.

19. (New) The substrate according to claim 16, wherein said lower layer of said protective layer has an amorphous structure.

20. (New) The substrate according to claim 16, wherein said lower layer of said protective layer has a thickness within a range of 50 to 500 nm.

21. (New) The substrate according to claim 16, wherein said lower layer of said protective layer has a film stress which is at least a compression stress and is equal to or less than 1.0×10^{10} dyn/cm^2.

22. (New) A substrate for an ink jet head comprising:

a base plate formed with a heat-generating resistor for generating energy for discharging ink;

an electrode wiring electrically connected with said heat-generating resistor; and

a protective layer provided above said heat-generating resistor and said electrode wiring, and constituted of a TaCr alloy containing Cr in an amount equal to or higher than 12 atomic %, a construction made by resin being formed on said protective layer.

23. (New) The substrate according to claim 22, wherein said protective layer

fixes a flow path forming member as resin construction through an organic adhesion promoting layer.

24. (New) The substrate according to claim 22, wherein said protective layer has an amorphous structure.

25. (New) The substrate according to claim 22, wherein said protective layer has a thickness within a range of 50 to 500 nm.

26. (New) The substrate according to claim 22, wherein said protective layer has a film stress which is at least a compression stress and is equal to or less than 1.0×10^{10} dyn/cm^2.

27. (New) A substrate for an ink jet head comprising:

a base plate formed with a heat-generating resistor for generating energy for discharging ink;

an electrode wiring electrically connected with said heat-generating resistor; and

a protective layer provided above said heat-generating resistor and said electrode wiring, and having a film stress which is at least a compression stress and is equal to or less than 1.0×10^{10} dyn/cm^2, a construction made by resin being formed on said protective layer.

28. (New) The substrate according to claim 27, wherein said protective layer

fixes a flow path forming member as resin construction through an organic adhesion promoting layer.

29. (New) The substrate according to claim 27, wherein said protective layer has an amorphous structure.

30. (New) The substrate according to claim 27, wherein said protective layer has a thickness within a range of 50 to 500 nm.

31. (New) An ink jet head comprising:

a construction made by a resin for forming a discharge port for discharging ink, and an ink flow path communicated with said discharge port and having a portion effecting the ink with thermal energy for discharging ink;

a base plate formed with a heat-generating resistor for generating energy for discharging ink;

an electrode wiring provided on said base plate and electrically connected with said heat-generating resistor; and

a protective layer provided above said heat-generating resistor and said electrode wiring, said protective layer being constituted of a two-layered section formed by a lower layer of a TaCr alloy and an upper layer of Ta, and of a single-layered section having said lower layer,

wherein a resin construction made by resin is formed on said lower layer of said single-layered section and said upper layer of said two-layered section is provided at a position in contact with ink at least above said heat-generating resistor.

32. (New) The ink jet head according to claim 31, wherein said lower layer of said single-layered section fixes a flow path forming member as resin construction through an organic adhesion promoting layer.

33. (New) The ink jet head according to claim 31, wherein said lower layer of said protective layer contains Cr in an amount equal to or higher than 12 atomic %.

34. (New) The ink jet head according to claim 31, wherein said lower layer of said protective layer has an amorphous structure.

35. (New) The ink jet head according to claim 31, wherein said lower layer of said protective layer has a thickness within a range of 50 to 500 nm.

36. (New) The ink jet head according to claim 31, wherein said lower layer of said protective layer has a film stress which is at least a compression stress and is equal to or less than 1.0×10^{10} dyn/cm^2.

37. (New) An ink jet head comprising:

a construction made by a resin for forming a discharge port for discharging ink, and an ink flow path communicated with said discharge port and having a portion effecting the ink with thermal energy for discharging ink;

a base plate formed with a heat-generating resistor for generating energy for discharging ink;

an electrode wiring provided on said base plate and electrically connected

with said heat-generating resistor; and

a protective layer provided above said heat-generating resistor and said electrode wiring, and constituted of a TaCr alloy containing Cr in an amount equal to or higher than 12 atomic %, a construction made by resin being formed on said protective layer.

38. (New) The ink jet head according to claim 37, wherein said protective layer fixes a flow path forming member as resin construction through an organic adhesion promoting layer.

39. (New) The ink jet head according to claim 37, wherein said protective layer has an amorphous structure.

40. (New) The ink jet head according to claim 37, wherein said protective layer has a thickness within a range of 50 to 500 nm.

41. (New) The ink jet head according to claim 37, wherein said protective layer has a film stress which is at least a compression stress and is equal to or less than 1.0 x 10^{10} dyn/cm^2.

42. (New) An ink jet head comprising:

a construction made by a resin for forming a discharge port for discharging ink, and an ink flow path communicated with said discharge port and having a portion effecting the ink with thermal energy for discharging ink;

a base plate formed with a heat-generating resistor for generating energy for discharging ink;

an electrode wiring provided on said base plate and electrically connected with said heat-generating resistor; and

a protective layer provided above said heat-generating resistor and said electrode wiring, and having a film stress which is at least a compression stress and is equal to or less than 1.0×10^{10} dyn/cm^2, a construction made by resin being formed on said protective layer.

43. (New) The ink jet head according to claim 42, wherein said protective layer fixes a flow path forming member as resin construction through an organic adhesion promoting layer.

44. (New) The ink jet head according to claim 42, wherein said protective layer has an amorphous structure.

45. (New) The ink jet head according to claim 42, wherein said protective layer has a thickness within a range of 50 to 500 nm.

46. (New) A producing method for an ink jet head including a construction made by a resin for forming a discharge port for discharging ink, and an ink flow path communicated with said discharge port and having a portion effecting the ink with thermal energy for discharging ink; a base plate formed with a heat-generating resistor for generating energy for discharging ink; an electrode wiring provided on said base plate and

electrically connected with said heat-generating resistor; and a protective layer provided above said heat-generating resistor and said electrode wiring, said protective layer being constituted of a two-layered section formed by a lower layer of a TaCr alloy and an upper layer of Ta, and of a single-layered section having said lower layer, wherein a resin construction made by resin is formed on said lower layer of said single-layered section and said upper layer of said two-layered section is provided at a position in contact with ink at least above said heat-generating resistor, comprising the steps of:

forming a protective layer in which a Ta layer is laminated on a layer formed by a TaCr alloy;

selectively patterning said Ta layer and selectively removing said Ta layer;

forming the ink flow path in a portion where the layer formed by said TaCr alloy is exposed by said removing.

47. (New) A producing method for an ink jet head including a construction made by a resin for forming a discharge port for discharging ink, and an ink flow path communicated with said discharge port and having a portion effecting the ink with thermal energy for discharging ink; a base plate formed with a heat-generating resistor for generating energy for discharging ink; an electrode wiring provided on said base plate and electrically connected with said heat-generating resistor; and a protective layer provided above said heat-generating resistor and said electrode wiring, and constituted of a TaCr alloy containing Cr in an amount equal to or higher than 12 atomic %, a construction made by resin being formed on said protective layer, comprising the steps of:

forming a protective layer in which a Ta layer is laminated on a layer formed by a TaCr alloy;

selectively patterning said Ta layer and selectively removing said Ta layer;

forming the ink flow path in a portion where the layer formed by said TaCr alloy is exposed by said removing.

48. (New) A producing method for an ink jet head including a construction made by a resin for forming a discharge port for discharging ink, and an ink flow path communicated with said discharge port and having a portion effecting the ink with thermal energy for discharging ink; a base plate formed with a heat-generating resistor for generating energy for discharging ink; an electrode wiring provided on said base plate and electrically connected with said heat-generating resistor; and a protective layer provided above said heat-generating resistor and said electrode wiring, and having a film stress which is at least a compression stress and is equal to or less than 1.0×10^{10} dyn/cm^2, a construction made by resin being formed on said protective layer, comprising the steps of:

forming a protective layer in which a Ta layer is laminated on a layer formed by a TaCr alloy;

selectively patterning said Ta layer and selectively removing said Ta layer;

forming the ink flow path in a portion where the layer formed by said TaCr alloy is exposed by said removing.